1. (Original) A method for use with a controller that supplies voltages to an induction machine via supply lines, the voltages including a fundamental voltage component and an injected voltage component, the line voltages also including harmonic voltage components where the harmonic voltage components include at least a high frequency first harmonic component having a frequency substantially equal to the sum of the fundamental component frequency and the injected component frequencies, the method for identifying the high frequency first harmonic component and comprising the steps of:

sensing the line voltages;

identifying a zero sequence voltage component of the line voltages;

rectifying the zero sequence voltage component to generate a rectified signal; and

using the rectified signal to identify the high frequency first harmonic component.

2. (Original) The method of claim 1 wherein the step of using the rectified signal includes the step of band pass filtering the rectified signal.

3. (Original) The method of claim 2 wherein the step of band pass filtering includes the step of providing first and second band pass filters having first and second center frequencies that are greater than and less than the injected voltage component frequency, respectively, and filtering the rectified signal using the first and second filters to generate first and second filtered signals, respectively, and, wherein, the step of using further includes the step of mathematically combining the first and second filtered signals to generate the first harmonic component.

4. (Original) The method of claim 3 wherein the step of mathematically combining includes adding the first and second filtered signals.

5. (Original) The method of claim 3 wherein the step of providing first and second filters includes providing first and second filters having first and second bandwidths where each of the first and second bandwidths includes the injected voltage component frequency.

6. (Original) The method of claim 5 wherein the step of providing filters includes providing first and second filters that have center frequencies that are one half the filter bandwidths greater than and less than the injected voltage component frequency, respectively.

7. (Original) The method of claim 1 wherein the step of using the rectified signal includes the step of providing a filter arrangement having less than 10 degrees phase shift within 2 percent of the injected voltage component frequency and filtering the rectified signal to via the provided filter to generate the first harmonic component.

8. (Original) The method of claim 7 wherein the step of providing a filter arrangement includes providing an arrangement having less than 4 degrees phase shift within 1.5 percent of the injected voltage component frequency.

9. (Original) A method for use with a controller that supplies voltages to an induction machine via supply lines, the voltages including a fundamental voltage component and an injected voltage component, the line voltages also including harmonic voltage components where the harmonic voltage components include at least a high frequency first harmonic component having a frequency substantially equal to the sum of the fundamental component frequency and the injected component frequencies, the method for identifying the high frequency first harmonic component and comprising the steps of:

identifying a derivative of the supply line voltages;

filtering the derivative using a first band pass filter having a center frequency that is less than the injected voltage frequency and a bandwidth that includes the injected voltage frequency thereby generating a first filtered signal;

filtering the derivative using a second band pass filter having a center frequency that is greater than the injected voltage frequency and a bandwidth that includes the injected voltage frequency thereby generating a second filtered signal;

mathematically combining the first and second filtered signals to generate a combined signal; and

using the combined signal to identify the first harmonic component.

10. (Original) The method of claim 9 wherein the step of identifying a derivative includes the step of identifying a zero sequence voltage component of the line voltages and using the zero sequence voltage component as the derivative.

11. (Original) The method of claim 9 wherein the step of identifying a derivative includes the step of identifying a zero sequence voltage component of the line voltages and rectifying the zero sequence voltage component to generate the derivative.

12. (Original) The method of claim 9 wherein the bandwidths of the first and second filters have identical widths and include maximum and minimum cutoff frequencies, respectively, that each equal the injected voltage frequency.

13. (Original) The method of claim 9 wherein the step of mathematically combining includes adding the first and second filtered signals.

14. (Original) A method for use with a controller that supplies voltages to an induction machine via supply lines, the voltages including a fundamental voltage component and an injected voltage component, the line voltages also including harmonic voltage components where the harmonic voltage components include at least a high frequency first harmonic component having a frequency substantially equal to the sum of the fundamental component frequency and the injected component frequencies, the method for identifying the high frequency first harmonic component and comprising the steps of:

identifying a zero sequence voltage component from the supply lines;

rectifying the zero sequence voltage component to generate a rectified signal;

filtering the rectified signal using a first band pass filter having a center frequency that is less than the injected voltage frequency and a bandwidth that includes the injected voltage frequency thereby generating a first filtered signal;

filtering the rectified signal using a second band pass filter having a center frequency that is greater than the injected voltage frequency and a bandwidth that includes the injected voltage frequency thereby generating a second filtered signal; and

adding the first and second filtered signals to generate the first harmonic component.

15. (Original) An apparatus for use with a controller that supplies voltages to an induction machine via supply lines, the voltages including a fundamental voltage component and an injected voltage component, the line voltages also including harmonic voltage components where the harmonic voltage components include at least a high frequency first harmonic component having a frequency substantially equal to the sum of the fundamental component frequency and the injected component frequencies, the apparatus for identifying the high frequency first harmonic component and comprising:

a determiner for identifying a zero sequence voltage component of the supply line voltages;

a rectifier for rectifying the zero sequence voltage component to generate a rectified signal; and

a filter using the rectified signal to identify the high frequency first harmonic component.

16. (Original) The apparatus of claim 15 wherein the filter includes at least one band pass filter.

17. (Original) The apparatus of claim 16 wherein the filter includes at least first and second band pass filters.

18. (Original) The apparatus of claim 17 wherein the first and second band pass filters have first and second center frequencies that are greater than and less than the injected voltage component frequency, respectively, and generate first and second filtered signals, respectively, the filter further including a summer for summing the first and second filtered signals to generate the first harmonic component.

19. (Currently Amended) The apparatus of claim 17 wherein the first and second filters have center frequencies that are a (Δ) value greater than and less than the injected voltage component frequency and that have band widths that are twice the (Δ) value.

20. (Original) The apparatus of claim 15 wherein the filter has less than 10 degrees phase shift within 2 percent of the injected voltage component frequency.

21. (Original) The apparatus of claim 20 wherein the filter has less than 4 degrees phase shift within 1.5 percent of the injected voltage component frequency.

22. (Currently Amended) An apparatus for use with a controller that supplies voltages to an induction machine via supply lines, the voltages including a fundamental voltage component and an injected voltage component, the line voltages also including harmonic voltage components where the harmonic voltage components include at least a high frequency first harmonic component having a frequency substantially equal to the sum of the fundamental component frequency and the injected component frequencies, the apparatus for identifying the high frequency first harmonic component and comprising:

a component for identifying a derivative of the supply line voltages;

a first filter for filtering the derivative using a first band pass filter having a center frequency that is less than the injected voltage frequency and a bandwidth that includes the injected voltage frequency thereby generating a first filtered signal;

a second filter for filtering the derivative using a second band pass filter having a center frequency that is greater than the injected voltage frequency and a bandwidth that includes the injected voltage frequency thereby generating a second filtered signal; and

a combiner for combining the first and second filtered signals to generate an output signal indicative of the first harmonic component. ~~combined signal.~~

23. (Original) The apparatus of claim 22 wherein the component for identifying a derivative includes a resistive configuration linked to the supply lines for identifying a zero sequence voltage component and wherein the derivative is the zero sequence voltage component.

24. (Original) The apparatus of claim 22 wherein the component for identifying a derivative includes a resistive configuration linked to the supply lines for identifying a high frequency zero sequence voltage component and a rectifier for rectifying the zero sequence voltage component to generate a rectified signal and wherein the derivative is the rectified signal.

25. (Original) The apparatus of claim 22 wherein the bandwidths of the first and second filters have identical widths and include maximum and minimum cutoff frequencies that each equal the injected voltage frequency.

26. (Original) The apparatus of claim 22 wherein the combiner is a summer.